

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) An epitaxial substrate for a compound semiconductor light-emitting device comprising:

a double-hetero light-emitting layer structure including a pn junction; and  
a p-type layer side layer structure formed in contact with the light-emitting layer structure including in order from the layer in contact with the light-emitting layer structure an n-type first layer represented by  $\text{In}_x\text{Al}_y\text{Ga}_z\text{N}$  ( $x + y + z = 1$ ,  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1$ ,  $0 \leq z \leq 1$ ), a p-type second layer represented by  $\text{In}_u\text{Al}_v\text{Ga}_w\text{N}$  ( $u + v + w = 1$ ,  $0 \leq u \leq 1$ ,  $0 \leq v \leq 1$ ,  $0 \leq w \leq 1$ ) and a p-type third layer represented by  $\text{In}_p\text{Al}_q\text{Ga}_r\text{N}$  ( $p + q + r = 1$ ,  $0 \leq p \leq 1$ ,  $0 \leq q \leq 1$ ,  $0 \leq r \leq 1$ ), each of the three neighbors being formed in contact with its neighbor.

2. (Currently Amended) ~~[[An]]~~ The epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 1, wherein a thickness  $d_1$  (Å) of the first layer is in the range of  $5 \leq d_1 \leq 200$  and a thickness  $d_2$  (Å) of the second layer is in the range of  $5 \leq d_2 \leq 30,000$ .

3. (Withdrawn, Currently Amended) A method for producing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device of claim 1, ~~characterized in that~~ wherein a growth temperature  $T_1$  of the first layer and a

growth temperature  $T_2$  of the second layer are made to satisfy the relationship  $T_1 \leq T_2$ .

4. (Withdrawn, Currently Amended) A method for producing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device of claim 2, ~~characterized in that~~ wherein a growth temperature  $T_1$  of the first layer and a growth temperature  $T_2$  of the second layer are made to satisfy the relationship  $T_1 \leq T_2$ .

5. (Withdrawn, Currently Amended) ~~[[A]]~~ The method for producing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 3 or 4, wherein the second layer is grown to satisfy the relationships:

$$5 \leq d_2 \leq 30,000 \quad (900 \leq T_2 \leq 1,150)$$

$$T_2 \geq 0.4 d_2 + 700 \quad (700 \leq T_2 < 900),$$

where  $T_2$  ( $^{\circ}\text{C}$ ) is the growth temperature of the second layer and  $d_2$  ( $\text{\AA}$ ) is the thickness of the second layer.

6. (Withdrawn, Currently Amended) ~~[[A]]~~ The method for producing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 3 or 4, wherein the second layer and the third layer are grown by a regrowth method after growth of the first layer.

7. (Withdrawn, Currently Amended) ~~[[A]]~~ The method for producing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 5, wherein the second layer and the third layer are grown by a regrowth method after growth of the first layer.

8. (Currently Amended) A light-emitting device utilizing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device of claim 1 or claim 2, and an electrode.

9. (Withdrawn) A light-emitting device utilizing the production method of claim 3.

10. (Original, Currently Amended) An epitaxial substrate for a compound semiconductor light-emitting device comprising:

a double-hetero light-emitting layer structure including a pn junction; and  
a p-type layer side layer structure formed in contact with the light-emitting layer structure including in order from the layer in contact with the light-emitting layer structure an n-type first layer represented by  $\text{In}_x\text{Al}_y\text{Ga}_z\text{N}$  ( $x + y + z = 1$ ,  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1$ ,  $0 \leq z \leq 1$ ), an n-type second layer represented by  $\text{In}_u\text{Al}_v\text{Ga}_w\text{N}$  ( $u + v + w = 1$ ,  $0 \leq u \leq 1$ ,  $0 \leq v \leq 1$ ,  $0 \leq w \leq 1$ ) and a p-type third layer represented by

$\text{In}_p\text{Al}_q\text{Ga}_r\text{N}$  ( $p + q + r = 1$ ,  $0 \leq p \leq 1$ ,  $0 \leq q \leq 1$ ,  $0 \leq r \leq 1$ ), each of the three neighbors being formed in contact with its neighbor.

11. (Currently Amended) ~~[[An]]~~ The epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 10, wherein the p-type dopant density of the n-type second layer is not less than  $1 \times 10^{17} \text{ cm}^{-3}$  and not greater than  $1 \times 10^{21} \text{ cm}^{-3}$ , and the n-type carrier density of the n-type second layer is not greater than  $1 \times 10^{19} \text{ cm}^{-3}$ .

12. (Currently Amended) ~~[[An]]~~ The epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 10, wherein a thickness  $d_1$  (Å) of the first layer is in the range of  $5 \leq d_1 \leq 200$  and a thickness  $d_2$  (Å) of the second layer is in the range of  $5 \leq d_2 \leq 500$ .

13. (Currently Amended) ~~[[An]]~~ The epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 11, wherein a thickness  $d_1$  (Å) of the first layer is in the range of  $5 \leq d_1 \leq 200$  and a thickness  $d_2$  (Å) of the second layer is in the range of  $5 \leq d_2 \leq 500$ .

14. (Withdrawn, Currently Amended) A method for producing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device of claim

10, 11, 12 or 13, ~~characterized in that~~ wherein a growth temperature  $T_1$  of the first layer and a growth temperature  $T_2$  of the second layer are made to satisfy the relationship  $T_1 \leq T_2$ .

15. (Withdrawn, Currently Amended)      [[A]] The method for producing [[an]] the epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 14, wherein the second layer is grown to satisfy the relationships:

$$T_2 \geq 0.4 d_2 + 700 \quad (5 \leq d_2 \leq 500)$$

$$1,150 \geq T_2 \geq 700,$$

where  $T_2$  (°C) is the growth temperature of the second layer and  $d_2$  (Å) is the thickness of the second layer.

16. (Withdrawn, Currently Amended) [[A]] The method for producing [[an]] the epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 14, wherein the second layer and the third layer are grown by a regrowth method after growth of the first layer.

17. (Withdrawn, Currently Amended) [[A]] The method for producing [[an]] the epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 15, wherein the second layer and the third layer are grown by a regrowth method after growth of the first layer.

18. (Currently Amended) A light-emitting device utilizing ~~[[an]]~~ the epitaxial substrate for the compound semiconductor light-emitting device of claim 10, 11, 12 or claim 13, and an electrode.

19. (Withdrawn) A light-emitting device utilizing the production method of claim 14, 15, 16 or claim 17.

20. (New) The epitaxial substrate for the compound semiconductor light-emitting device as claimed in claim 10, wherein the n-type second layer has a p-type dopant.

21. (New) An epitaxial substrate for a compound semiconductor light-emitting device comprising:

a double-hetero light-emitting layer structure including a pn junction; and  
a p-type layer side layer structure formed in contact with the light-emitting layer structure including in order from the layer in contact with the light-emitting layer structure an n-type first layer represented by AlGa<sub>N</sub>, a p-type second layer represented by AlGa<sub>N</sub>: Mg and a p-type third layer represented by GaN: Mg, each of the three neighbors being formed in contact with its neighbor.